Action Plan for the Protection of the Baltic Sea and Inland Watercourses

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MINISTRY OF THE ENVIRONMENT

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Foreword

Finland's Action Plan for the Protection of the Baltic Sea and Inland Watercourses has been designed to implement the Finnish Government's Decision-in-Principle of 26.4.2002 on the Protection of the Baltic Sea. The new action plan also includes new measures deemed to be necessary on the basis of an interim assessment of Finland's programme of Water Protection Targets for 2005. The state of the coastal waters of the Baltic Sea is greatly determined by the environmental loads that enter the sea from coastal areas and inland watercourses. The measures that need to be taken to protect inland waters are inseparable from the identical or complementary measures needed to protect the Baltic Sea.

The Action Plan for the Protection of the Baltic Sea and Inland Watercourses has been jointly drafted by various administrative sectors and other actors on the basis of the above-mentioned Government decision, while also adopting proposals made by the Baltic Sea Working Group, and the comments and statements received on these proposals. The Ministry of the Environment officially approved the new action plan on 1.6.2005.

Ministry of the Environment

Ministry of the Environment Decision of 1.6.2005 on the Action Plan for the Protection of the Baltic Sea and Inland Watercourses

The Ministry of the Environment approves the attached Action Plan for the Protection of the Baltic Sea and Inland Watercourses as Finland's official action plan for the protection of the Baltic Sea as defined in the related Government Decision-in-Principle.

The new action plan has been jointly drafted by various administrative sectors and other actors on the basis of the Government Decision, while also adopting proposals made by the Baltic Sea Working Group, and the comments and statements received on these proposals.

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Introduction

The Finnish Government made a Decision-in-Principle on the Protection of the Baltic Sea on 26.4.2002. This decision established a programme that set out objectives related to the protection of the Baltic Sea, defining specific measures and areas where action is needed to achieve these objectives. Six areas for action have been selected in order to improve the ecological state of the Baltic Sea so that it can be categorised as "good". These areas for action are: combating eutrophication; reducing the risks caused by hazardous substances; reducing the harmful impacts of the use of the Baltic Sea; preserving and increasing biodiversity; increasing environmental awareness; and research and monitoring. The Government decision instructed the Ministry of the Environment to draft an Action Plan for the Protection of the Baltic Sea in co-operation with other administrative sectors and actors in order to implement the necessary actions.

On 19.3.1998 an earlier Government Decision-in-Principle on Water Protection Targets for 2005 was made with regard to the protection of inland waters and groundwater as well as the Baltic Sea. In line with this decision the Ministry of the Environment approved on 30.3.2000 a programme of Water Protection Targets for 2005. The Finnish Environment Institute (SYKE) has prepared an interim report on the implementation and impacts of this programme with regard to the situation in the year 2000. This assessment indicates that the objectives will probably not be reached through the measures proposed earlier, and that the programme should be revised with regard to certain measures. The necessary revisions mainly concern water protection in agriculture, and reductions in emissions of wastewater from rural settlements. The programme has in other respects largely progressed as planned. No additions to the programme are necessary with regard to groundwater protection and the activities of most sectors apart from agriculture, but the actions set out within the programme must be continued in all sectors in order to reach the programme's objectives.

The state of the coastal waters of the Baltic Sea is determined by pollutant loads entering the sea from coastal areas and inland watercourses. The measures that need to be taken to protect inland waters are inseparable from the identical or complementary measures needed to protect the Baltic Sea.

This Action Plan for the Protection of the Baltic Sea and Inland Watercourses has been drafted to implement the Finnish Government's Decision-in-Principle on the Protection of the Baltic Sea, whose emission reduction objectives are in turn based on the programme of Water Protection Targets for 2005. The new action plan also includes new measures deemed to be necessary on the basis of an interim assessment of progress towards the water protection targets.

Sections 1 and 2 of the new action plan include both measures needed specifically for the protection of the Baltic Sea, and revisions to the more general water protection targets programme designed to complement or replace earlier measures. Sections 3 - 6 cover actions needed in other areas specifically to protect the Baltic Sea.

The Act on the Organisation of River Basin Management (1299/2004) requires that by the end of 2009 regional river basin management plans and related action plans should be drafted to cover the whole country. These plans aim to protect, enhance and restore surface waters and groundwater so as to ensure their state

is at least "good" by 2015 at the latest. These regional river basin management and action plans will be revised every six years after 2009. Finland's Programme for the Protection of the Baltic Sea and this new action plan will nevertheless be implemented independently.

The report assessing the implementation of the programme of Water Protection Targets for 2005 will be in summer 2005. The Ministry of the Environment has also begun to draft a new water protection policy to be applied until 2015 covering inland waters, groundwater and the sea. These policy outlines are being designed to facilitate the preparation of the obligatory river basin management plans and action plans, while also contributing to the implementation of Finland's Programme for the Protection of the Baltic Sea. The policy outlines should be completed by the end of 2006.

1 Combating eutrophication

Finland's Programme for the Protection of the Baltic Sea was specifically designed to curb eutrophication and improve the state of its waters. This is to be achieved by reducing the nutrient loads that ultimately enter the sea, particularly in runoff from farmland, in wastewater from municipalities and scattered rural settlements, in industrial emissions, and in the fish farming and forestry sectors. In defining the necessary reductions, consideration is given to the requirements of the Water Framework Directive (2000/60/EC) that all European waters should have at least a "good" ecological state. Steps are also being taken internationally to reduce the nutrient emissions originating in neighbouring countries, mainly Russia and Estonia, which exacerbate eutrophication in the Gulf of Finland, as well as atmospheric deposition into the Baltic of nutrient pollution originating from other regions.

At the same time as taking measures to reduce direct nutrient inputs, emissions and their impacts can also be reduced through land use planning policies. In addition to considering other planning objectives, planners should promote water protection by ensuring that activities that can affect the state of watercourses are located so as to minimise their harmful impacts.

1.1 Reducing nutrient loads in agriculture

The most important legislative tools for environmental protection in agriculture include the Environmental Protection Act (86/2000), the Environmental Protection Decree (169/2000) and the Government Decree on the restriction of discharge of nitrates from agriculture into waters (931/2000), as well as general agricultural legislation. The controls necessary to reduce and prevent pollution can be defined under the Environmental Protection Act. Municipalities may also enforce their own environmental regulations. The Environmental Protection Decree defines the environmental permit system for livestock facilities, but does not cover the cultivation of fields. The Government Decree on Treating Domestic Wastewater in Areas Outside Sewer Networks (542/2003) also controls agricultural activities such as the treatment of wastewater from dairy farms' milking sheds.

The current agri-environmental subsidies support system for 2000-2006 forms part of Finland's Horizontal Rural Development Programme, and is based on the EU's Rural Development Regulation (EC 1257/1999). The previous programme was initiated in 1995. The whole agri-environmental subsidies support scheme constitutes the most important instrument to promote environmental protection in agriculture, and its special subsidy support schemes are seen as having the potential for great environmental benefit if subsidies can be suitably channelled. Water protection measures will be increasingly encouraged in problem areas in the new agri-environmental subsidies support programme currently being drafted for the next period beginning after 2006. The aim is to prioritise measures to reduce nutrient emissions through the selective granting of subsidies, and to consider specific measures for individual farms.

According to the interim evaluation of the Water Protection Targets Programme for 2005 and the findings of the research project Monitoring the

Impacts of Finland's Agri-Environmental Support Scheme (MYTVAS), reductions in nutrient loads have been much slower than was hoped, even though subsidies the support scheme have coversed more than 90% of the country's farmland, and been applied for almost a decade. The water protection targets set for 2005 will evidently not be reached through the environmental protection measures currently applied in agriculture. This is partly because reductions in nutrient loads are only reflected in improved conditions in watercourses after some delay, and also partly because the targets were very ambitious. It is worth pointing out, however, that in some areas where agricultural production has increased, there have not been corresponding increases in nutrient loads in watercourses.

Reducing agricultural nutrient loads from agriculture is also a main plank of Finland's Programme for the Protection of the Baltic Sea. The Finnish Government requires that both national and EU funding is ensured for the implementation of the agri-environmental support scheme during the period 2000-2006. The programme also proposes that the level of special subsidies support should be increased and channelled to effectively curb eutrophication, particularly by promoting suitable measures in southern and western coastal regions and in Ostrobothnia. The proposals indicated that funding amounting to 30.3 million euros should be provided in Government budgets during the period 2003-2006 to improve subsidy levels. The Government also required that the future continuation of water protection measures in agriculture should be safeguarded for the next subsidy programming period 2007-2013, and that incentive measures should be channelled so as to reduce the nutrient loads entering the Baltic Sea cost-effectively.

In training, advisory services and marketing related to water protection measures, the environmental authorities must particularly focus on the measures needed to address specific problems in each area as effectively as possible.

Continuous training and advice related to environmental protection needs is required to enable Finnish agriculture to develop favourably. Teaching in agricultural colleges should increasingly stress the need to manage the agricultural environment well. More advice should be provided for farmers, and training should be made more interesting and motivating. Care must also be taken to ensure adequate resources are available for environmental research in the agricultural field, and that useful research results are duly applied in practice.

1.1.1 Maintaining the structure and condition of farmland

Conditions such as soil acidity levels and effective field drainage affect crops' nutrient uptake. Unused nutrients may leach into watercourses. Good conditions for farming can be maintained through careful management of the structure of farmland soils, hydrological conditions, and liming practices. As farm sizes have increased, the number of rented fields has also risen, and in some cases short rental agreements discourage farmers from carrying out maintenance work such as renewing subsurface drainage systems. Farmland rental practices should be changed to ensure that all agreements specify who is responsible for maintaining good conditions in the fields, and how improvements should be made during rental periods. Heavy machinery and insensitive farming methods that could cause erosion or harmful soil compacting should be avoided. Environmentally favourable practices such as lighter ploughing and direct drilling should be more widely adopted wherever possible to reduce such problems, even though further research is still needed into of the environmental impacts of such methods.

The agri-environmental support scheme should effectively promote increases in vegetation cover to help lessen erosion and nutrient leaching. Green fallowing and perennial grass cover are among the best ways to increase vegetation cover.

Production trends that include the wider growing of grasses should particularly be favoured to reduce nutrient leaching in Southern Finland.

The use of controlled subsurface drainage schemes should be increased where possible. More research should be conducted into opportunities to recycle drainage water. The selection of fodder regimes for livestock can affect the nutrient content of manure.

The need for pesticides can be reduced by diversifying crop rotation cycles, and this also helps to maintain farmland soil conditions.

Actors

The Environmental Administration monitors the state of the environment, oversees environmental training and advisory services, and provides official statements with regard to the shaping of agricultural policies. The Ministry of Agriculture and Forestry oversees developments in farming in Finland and the related support schemes, with regard to environmental protection objectives, while also providing administrative and financial instruments. Agrifood Research Finland (MTT) is responsible for research in the agricultural field. Rural Advisory Centres provide advice and guidance for farmers. Municipalities pass environmental protection regulations as necessary with regard to such issues as farming practices in areas where groundwater is used in the water supply. The Central Union of Agricultural Producers and Forest Owners (MTK) and its sister organisation the Central Union of Swedish-speaking Agricultural producers in Finland (SLC) also advise their members on environmental protection. Farmers are responsible for the implementation of environmental measures in practice, and for managing the physical condition of farmland, including nutrient loads in the farmland they own or rent.

Time frame

Continuous

1.1.2 Establishing buffer zones and wetlands to reduce erosion

Establishing suitably located buffer zones and artificial wetlands is among the most cost-effective means to reduce nutrient emissions. Such features should be increasingly established in areas where the environmental benefit will be greatest – in southern and southwestern coastal regions of Finland. Buffer zones of vegetation should primarily be established where fields slope down towards adjoining watercourses, and in fields liable to flooding. Buffer zones can be managed to prevent the spread of weeds by mowing them annually and removing the waste plant material. The green fallowing of fields also greatly helps to prevent erosion. For artificially established wetlands to function well, they must be large enough with regard to the catchment areas of the watercourses concerned.

Actors

The agricultural and environmental authorities must ensure continuity in the establishment of buffer zones and wetlands, also through future agri-environmental support schemes. The environmental authorities and agricultural research organisations will continue to monitor the levels and impacts of emissions from farmland into watercourses. The authorities must also assess the effectiveness of environmental protection controls in farming, and the need for further measures, while ensuring that measures are adopted, through training, advisory services and official statement procedures. Farmers involved in such agreements must establish suitable buffer zones and wetlands according to wider regional plans.

Time frame
Continuous.

1.1.3 Reducing the leaching of nutrients into watercourses through appropriate fertilisation and manure storage and usage practices

Farmland should be fertilised only to the extent required by the cultivated crops, on the basis of research results and realistic estimates of crop yields. The careful monitoring of nutrient levels can facilitate the planning of cultivation and the usage levels of nutrient fertilisers. In order to improve the use of cattle manure and prevent increasinges in phosphorus concentrations in farmland, steps should be taken to encourage the long-term redistribution of livestock facilities more evenly across the country, while considering the natural conditions needed for viable farming. This will help to curb rises in phosphorus concentrations caused by the excessive application of manure over the same small areas year after year. The use of manure can also be rationalised by promoting the transfer of manure from livestock farms to arable farms, through advice, publicity and special environmental subsidies.

The amounts of manure used to fertilise crops grown on open fields can lead to high nutrient loads locally. Manuring Application levels of animal manure should be determined according to the needs of the crop variety, and this factor should be considered in the conditions set for environmental subsidies.

Emissions of nitrogen and phosphorus from livestock farms will be reduced through suitable feeding regimes and fodder choices.

Recommendations on the application of manure can be revised when the results of research into the usability of phosphorus in manure become available. The Government Decree on the restriction of discharge of nitrates from agriculture into waters restricts the sizes of manure collection and storage facilities, as well as the frequency of manure use and the amounts of manure that can be spread.

The Government Decree on Treating Domestic Wastewater in Areas Outside Sewer Networks (542/2003) promotes the effective treatment of wastewater from dairy farms' milking sheds. The treatment of wastewater from exercise paddocks is also to be improved, and the methods used to rinse other livestock facilities should also be addressed. The liquids extracted during the compression of silage fodder must be efficiently taken into storage and used to fertilise fields.

Actors
The Ministry of Agriculture and Forestry must develop the agri-environmental support scheme together with other authorities and interest groups to ensure surplus nutrients do not accumulate in farmland. Agrifood Research Finland, The Finnish Environment Institute and tertiary educational institutions should carry out research to examine possible improvements in farming methods and other issues. Farmers will implement measures in practice, aiming to ensure that nutrients are used as rationally as possible to benefit crops, and do not end up in watercourses.

Time frame
Continuous.

1.2 Reducing nutrient loads in municipal wastewater

1.2.1 Improving nutrient removal from municipal wastewater

Phosphorus

The phosphorus load reduction targets for 2005 require high quality phosphorus removal measures at all treatment plants. To reduce the annual loads burdening watercourses to less than 174 tonnes, the average efficiency of phosphorus removal must exceed 96%. The average phosphorus concentrations in treated wastewater would have to be under 0.3 mg/l for plants serving more than 10,000 residents, and less than 0.5 mg/l for plants serving fewer than 10,000 residents. These emission reduction targets can only be reached with the help of considerable improvements in the operation and maintenance of sewerage networks and treatment plants.

Nitrogen

The need for nitrogen removal is assessed case by case for the purposes of the environmental permits issued to wastewater treatment plants, according to their specific loads and the characteristics of the areas affected. Nitrogen removal will particularly be intensified at plants whose effluents reach coastal or inland waters where nitrogen levels are the critical factor behind local eutrophication processes. Research indicates that this is the case generally or at least occasionally in coastal waters of the Baltic south of the Quark and eastwards as far as the end of the Gulf of Finland, so in these regions nitrogen loads must be reduced in order to curb eutrophication.

Local environmental conditions are also considered in nitrogen removal, and the quantities defined in permits must meet the requirements of the Urban Wastewater Treatment Directive (91/271/EEC).

Measures and actors

Water service providers should implement the measures needed to fulfil the conditions in their enironmental permits regarding reductions in nitrogen and phosphorus emissions in wastewater from built-up areas. They should also set their own objectives for their wastewater treatment plants, in line with national water protection targets, and develop their activities to ensure these goals can be reached.

The Environmental Administration's information system for overseeing environmental permits, known as VAHTI, is used to facilitate supervision and monitoring. VAHTI is used by the environmental authorities and increasingly also by water service providers to monitor emissions at plant level, regional level and national level with regard to targets.

With the help of the Finnish Association of Local and Regional Authorities and the Finnish Water- and Wastewater Works Association, Finland's municipalities and water service providers promote the uptake of voluntary environmental management systems such as EMAS and the ISO 14001 standard.

The environmental authorities' statements on environmental permits related to wastewater should be developed as necessary to account for each plant's own environmental protection objectives and the measures taken by permit applicants to achieve these targets, so as to encourage sewage works to act responsibly and independently with long-term foresight to reduce environmental loads.

In 2005 the Ministry of the Environment will revise an earlier Government Decision on the Treatment of Municipal Wastewater (365/1994) to update

regulations on nutrient removal in line with a new decree based on the Environmental Protection Act (86/2000).

Through their statements and information work the Ministry of the Environment and the regional environment centres control the implementation of measures that promote nutrient removal, thereby overseeing the implementation of the Decree on Municipal Wastewater and the Water Framework Directive in accordance with efforts to reach Finland's water protection targets.

Where nitrogen concentrations are the critical factor behind eutrophication in recipient water bodies, the regional environment centres must issue statements on environmental permits so as to oblige wastewater treatment plants to remove more nitrogen, in accordance with the Government Decisions on the Treatment of Municipal Wastewater (365/1994 & 757/1998) and the stipulations in a new decree that will replace them. Wherever nitrogen removal is required, removal rates should amount to more than 50% annually.

Statements issued in relation to permits for treatment plants serving more than 10,000 residents should always set targets for annual nitrogen removal levels that ensure that less than 30% of the nitrogen present in the untreated wastewater should reach marine waters south of the Quark, or nitrogen-critical inland waters or marine waters in the Bothnian Sea.

In official statements for permits for plants treating wastewater from areas with fewer than 10,000 residents, and where nitrogen causes eutrophication in recipient waterbodies in the immediate vicinity of a plant, regional environment centres should set targets for nitrogen reduction levels of at least 50% when the treatment process occurs at temperatures above 12 °C.

Time frame

Trends in the nutrient loads dealt with by sewage works are to be monitored annually. The minimum targets for nutrient reduction should be continuously updated to ensure that combined loads do not exceed national goals.

Improvements in nutrient removal will continue according to the time frames stipulated in the requirements for environmental permits and in water service providers' own objectives.

The nitrogen load reductions required within the national programme of Water Protection Targets for 2005 have already been achieved. Efforts to reduce phosphorus loads will continue, with the aim now being to achieve the 2005 target level by 2008.

Measures designed to improve nitrogen removal will be continued to ensure that the targets set in Finland's Programme for the Protection of the Baltic Sea can be reached by 2015.

1.2.2 Improving operating conditions for treatment plants

Regional and local land use plans should ensure that large enough areas are reserved for the treatment of wastewater, and for existing plants to be expanded as necessary. Such planning designations should consider the need for plants to adapt to cope with stricter environmental controls in the future.

The treatment of wastewater from industrial facilities and built-up areas in central treatment plants will be expanded wherever the quantities and characteristics of wastewater are suitable, and central treatment is beneficial economically or in terms of environmental protection.

The leakage of wastewater on its way to treatment plants must be minimised by intensifying the renewal, repair and maintenance of older sewers, and by improving construction standards for new sewers.

Measures and actors

The regional environment centres will guide the general planning of water services as necessary, also assessing the need for larger scale wastewater collection and treatment projects across municipal boundaries. Water service providers and industry will be responsible for the implementation of any such joint projects as necessary. The State support currently available for water protection can be used to promote joint projects designed to reduce wastewater emissions where this is advantageous. Regional authorities and municipalities should oversee the harmonisation of land use plans and technical infrastructural plans, ensuring that plans include enough suitable reservations for treatment plants and other sewerage infrastructure.

Water service providers, industrial plants and properties must all ensure that their sewerage networks are suitably maintained, repaired and improved where necessary.

Industrial plants are responsible for the preliminary treatment of any wastewater that differs from household sewage before feeding it into the sewerage networks of water service providers, to ensure that these networks are not overburdened. The work done jointly by water service providers, businesses and the environmental authorities to prevent such problems will be enhanced, through improvements in connection contracts and environmental permit procedures, for instance.

Water service providers must set targets for reductions in leakages for 2010 and 2020. These targets will be submitted to the VAHTI information system used by the environmental authorities to supervise environmental permits. Leakage flow analysis will then be applied to monitor local, regional and national trends in leakages, as well as the impacts of sewerage repairs, with regard to targets. Water service providers may adjust their leakage reduction targets as necessary. The Finnish Environment Institute and the regional environment centres will run the monitoring system based on this leakage flow analysis, in co-operation with the water service providers.

Storm water and drainage water will not be fed into sewerage networks in newly built-up areas. Where combined sewerage systems are renewed in the central areas of towns and cities, the mixing of storm and drainage water with sewage will be prevented systematically as necessary. Sewerage networks and their inspection will be improved to minimise the harmful impacts of any occasional releases of sewage into the environment, and to allow them to be accurately monitored as necessary.

In their official statements relating to environmental permits for wastewater treatment plants, the regional environment centres will set suitable conditions to promote reductions in leakages. The leakage flow analysis within the VAHTI information system will be exploited with regard to the supervision of observance of permit conditions related to leakage reductions.

Time frame

Activities related to the consideration of treatment plants in land use planning, the improvement of sewerage networks, and reductions in leakages are continuous, with time frames defined for each project. Measures should be timed to enable treatment plants to remove nitrogen from wastewater with regard to leakages when this is necessary for environmental reasons due to local conditions, and at the latest by 2015, as required by Finland's Programme for the Protection of the Baltic Sea.

1.2.3 Improving sludge treatment

Finland's National waste Plan was revised in 2003, and the National Biowaste Strategy was approved in 2004. The treatment of sewage sludge is to be improved in accordance with the national and regional waste plans and the National Biowaste Strategy.

Measures and actors

The quantities of sludge will be reduced through the adoption of decomposition tanks and biological nutrient removal processes that reduce the use of chemicals, and through the more efficient drying of sludge. Gases from decomposition tanks will be used to generate energy. Special priority will be given to the implementation of measures that help to achieve and maintain the target level for sludge recovery of 90% as set out in the National Waste Plan for 2005.

The Government Decree on Treating Domestic Wastewater in Areas Outside Sewer Networks (542/2003) came into force in the beginning of 2004, aiming to promote the controlled treatment of sewage sludge from sedimentation tanks, septic tanks and small treatment plants, while also increasing the amounts of sludge sent to waste treatment plants. The Environmental Administration, the Ministry of Agriculture and Forestry, municipalities and water service providers will work together to improve the general planning of water services and waste management so as to ensure that plans duly account for the need to treat sludge in sedimentation tanks, septic tanks and small treatment plants in rural areas, while also ensuring that sludge from plants in built-up areas can be suitably treated. To avoid the transportation of small amounts of sludge for long distances, suitable sewage sludge treatment solutions should be developed for individual properties in rural areas, together with the municipal regulations controlling them. These measures should be based on the subsidiarity principle, promoting the local recovery of sludges and the nutrients they contain, avoiding any harmful environmental impacts, and fulfilling all the related legislative requirements.

Co-operation between the various actors in the water services and waste management sectors should be intensified to promote the environmentally favourable and cost-effective treatment of sludges and other organic wastes. Opportunities exist for developments such as the treatment of sewage sludge together with separately collected biowaste, and for the centralisation of the treatment of sewage sludge from scattered settlements in rural areas.

Water service providers should assess opportunities to increase the recovery of sewage sludge through further processing and the commercial exploitation of end products. Wastewater treatment plants must increase their co-operation with the manufacturers of fertilisers and plant substrates, with the organisations responsible for managing parks and green areas for municipalities, and with farmers and the manufacturers of agricultural machinery. Such co-operation should aim to improve the treatment of sludge so that the characteristics of the end product enable it to be transported, stored and spread according to the needs of its eventual users.

Time frame

The time frames of such measures are defined according to the requirements of the regional and national waste plans and the National Biowaste Strategy. Continuous and project-specific time frames can be redefined as necessary, for instance when the conditions for environmental permits for waste treatment are assessed.

1.3 Reducing nutrient loads from rural settlements

1.3.1 Controlling settlements and their nutrient emissions through the planning of land use and water services

The Land Use and Building Act (132/1999) and Decree (895/1999) are to be implemented with due consideration given to the protection of watercourses and the Baltic Sea. Building developments in both rural and built-up areas will be steered into areas served by existing water services infrastructure, to guarantee that their wastewater will be appropriately treated.

Environmental protection regulations, planning controls and recommendations, the regulations of municipalities' building organisations and the conditions for building permits can all be used to control building developments. Through the municipal environmental protection regulations based on the Environmental Protection Act (86/2000), municipalities can consider local conditions when setting requirements, within the scope of the Government Decree on Treating Domestic Wastewater in Areas Outside Sewer Networks (542/2003) (see section 1.3.3). Such steps should be taken when building developments are proposed in sensitive areas with regard to the protection of watercourses and the Baltic Sea, and especially where buildings are planned alongside watercourses or on the coast.

The regional waste plans and general water service plans drawn up jointly by the regional environment centres and municipalities should include assessments of the need for sludge treatment in rural areas, as well as other needs for improvements and new solutions related to wastewater treatment. Municipalities should include development principles for the treatment of wastewater from homes outside sewerage networks in their water services development plans, as required under the Water Services Act (119/2001).

Regional land use plans, master plans, regional waste plans and water services plans should be harmonised during drafting, and designed to complement each other so that the solutions they contain as efficiently as possible promote the protection of watercourses and the Baltic Sea with regard to the related objectives. In the planning of land use, water services and sludge treatment, care should be taken to curb increases in loads due to the increased use of holiday homes and their conversion to more permanent homes.

Actors

Municipalities must implement the Land Use and Building Act and Decree, and plan local water services as specified in the Water Services Act.

The Ministry of Agriculture and Forestry and the regional environment centres control and oversee the implementation of the Water Services Act.

The Ministry of the Environment and the regional environment centres supervise and provide advice on the implementation of the Land Use and Building Act and the Environmental Protection Act, while also controlling the regional planning of water services together with the Ministry of Agriculture and Forestry.

Time frame

Measures will be carried out through the due implementation of the Land Use and Building Act, the Environmental Protection Act and the Water Services Act, and through specific projects whenever such planning measures are required.

1.3.2 Expanding sewerage networks into previously unconnected built-up areas

After consulting with water service providers, municipalities should define their operating areas as stipulated in the Water Services Act (119/2001) and ensure that planned developments and economic conditions support the connection of areas needing services to suitable sewerage networks. In defining these operating areas the needs of holiday homes and the current trend for their conversion into permanent residences should also be considered.

Municipalities should particularly expand the operating areas of water service providers into built-up areas where suitable sewerage systems can prevent significant harmful impacts on watercourses, and where the provision of such systems is economically viable. Water service providers should improve their economic capacities to expand sewerage networks into previously unconnected built-up and rural areas by amending their charge systems to better reflect current thinking with regard to the polluter pays principle.

The main principle of the Water Services Act is that properties within service providers' operating areas are obliged to get connected to their sewerage networks. Municipalities must ensure that this obligation is duly fulfilled. Properties outside the operating areas of water service providers should be encouraged to arrange their own collective sewerage systems independently. One opportunity in this respect concerns the provision of technical, financial and information support for organisations such as water service co-operatives who provide wastewater collection and treatment facilities. Assessments of such opportunities should be duly incorporated into municipalities' water services development plans.

Actors

Municipalities and water service providers are responsible for the planning and implementation of measures, with the help of technical and other support from the Finnish Association of Local and Regional Authorities and the Finnish Water- and Wastewater Works Association.

The Ministry of Agriculture and Forestry, the Ministry of the Environment and the regional environment centres must control, oversee and support the implementation of measures as necessary using the available resources.

Time frame

Continuous. Unified sewerage networks should be constructed within the time frames defined by water service plans and local conditions.

1.3.3 Applying best available techniques and following environmental best practices to reduce nutrient loads from settlements and holiday homes in rural areas

The Government Decree on Treating Domestic Wastewater in Areas Outside Sewer Networks (542/2003) came into force on 1.1.2004, setting out minimum standards for wastewater treatment, and requirements relating to the planning, construction and maintenance of wastewater systems. In new buildings these requirements must be met immediately, but buildings already in existence in 2004 have until the beginning of 2014 to meet the standards set out in the decree. On this basis municipalities may define environmental protection regulations delimiting the areas where different wastewater treatment standards should be applied, and these areas should also be included in the regularly updated municipal water services development plans.

Municipalities may issue local environmental protection regulations to set property-specific wastewater treatment standards as necessary with regard to local conditions and the consequent needs. These regulations must be harmonised with controls over building priorities, and must also be duly considered in the issuing of planning controls and regulations and building permits. Where holiday homes are converted into permanent residences the same water protection standards should be applied in controls and conditions as for other housing.

Municipalities should apply the stipulations of the Land Use and Building Act, the Environmental Protection Act and the Water Services Act and also through the necessary forms of co-operation with operators and residents ensure that property-specific wastewater treatment facilities are professionally and expertly managed, maintained and inspected.

The Finnish Environment Institute maintains registers of best available techniques and environmental best practices, and also ensures that the relevant information is readily accessible for the purposes of the regional environment centres, municipalities, residents and water service providers. Increasing awareness of these options helps to encourage the adoption of new effective equipment and management and maintenance practices. Actors

Properties outside sewerage networks must ensure that their wastewater is suitably treated. Municipalities provide guidance to help properties implement the necessary measures in practice, and are also responsible for the related administrative tasks as defined in the Government Decree on Treating Domestic Wastewater in Areas Outside Sewer Networks (542/2003).

The Ministry of the Environment, the Ministry of Agriculture and Forestry and the regional environment centres also help actors including municipal officials, developers, planners, equipment manufacturers, builders and water service providers to carry out the measures required under the Decree.

The Finnish Environment Institute maintains registers of best available techniques and environmental best practices related to management and maintenance, ensuring that this information is readily accessible.

Time frame

Wastewater treatment in areas outside sewerage networks will be improved during the transitional period defined in the related Government Decree (542/2003). At least 70% of property-specific wastewater treatment facilities in rural areas should be covered by regular expert maintenance by 2010. Suitable management, maintenance and inspection systems should then be further expanded so that all facilities are covered by 2014.

By 2014, 95% of all properties outside sewerage networks should be equipped with facilities corresponding to best available wastewater treatment techniques; and by 2018 all properties should be duly equipped. In the year 2000 the phosphorus loads entering watercourses totalled some 350 - 400 tonnes annually, and this figure should be reduced by 2015 to 100 - 150 tonnes.

1.4 Reducing industrial nutrient emissions

1.4.1 Efficiently reducing industrial nitrogen emissions to help curb eutrophication in the Baltic Sea

The need to protect the Baltic Sea and inland watercourses in the various river basins through the suitable treatment of wastewater must be fully accounted for when environmental permits are issued for industrial facilities. Nitrogen loads should particularly be reduced at industrial plants whose effluent loads reach

the Gulf of Finland and the Bothnian Sea. Environmental protection measures should be prioritised where nitrogen loads are highest, and where reductions are most urgently needed, in locations where industrial nitrogen loads have been found to have a significant impact in waters where nitrogen levels are the crucial factor affecting eutrophication. Special attention should be given to the application of best available nitrogen load reduction techniques.

Wastewater treatment should be carried out jointly with municipalities were this is economically viable and environmentally favourable.

In designating locations for industrial facilities planners should consider the need to protect watercourses.

Measures and actors

Industry will be responsible for the implementation of the necessary measures. Industrial organisations will support industry using their expertise. The regional environment centres will use their expertise and official statements to control industry by setting obligations and controlling their implementation. The environmental permit authorities will issue environmental permits, and the planning authorities will be responsible for the necessary planning measures.
Time frame

Time frames for implementation will be defined in connection with the renewal of the environmental permits issued to industrial facilities.

1.5 Reducing nutrient loads and their impacts in fish farming

In the fish farming sector environmental protection can be improved by adapting present methods and by adopting and developing new water protection techniques. Harmful local impacts can also be reduced through the careful planning and location of fish farming facilities.

Such improvements require adequate funding and other inputs from society. Development work in this sector is co-ordinated through a special research and development programme for environmental protection in fish farming. Environmental protection guidelines are applied in the issuing of permits, in supervision, in the monitoring of emissions and impacts, and in the administration of the sector.

The Action Plan for the Protection of the Baltic Sea and Inland Watercourses focuses on the most effective measures that can be taken in fish farming to protect inland waters and the Baltic Sea.

1.5.1 Improving feedstuffs and optimising feeding practices

Feeding practices should be optimised by developing and adopting both new feeding methods that save on the quantities of feedstuffs, and new forms of feedstuffs with fewer harmful environmental impacts. These measures will both reduce nutrient emissions, and save on production costs. Feeding can also be made more effective by selectively breeding fish stocks so that they benefit more from the nutrients in feedstuffs.

In issuing permits, the authorities should insist on the use of best available feeding techniques and best environmental feeding practices wherever possible. Where this is not possible, hand-feeding should be carefully controlled, and only the best feedstuffs used.

1.5.2 Improving water protection techniques in fish farming

Old fish farming facilities using net enclosures should be fundamentally renovated, with fish-sludge removal systems applied wherever possible. In the longer term, such facilities in the Archipelago Sea should strive to replace more open net enclosures with bag-like enclosures made of special waterproof textiles. Opportunities to adopt favourable fish-sludge removal methods should be assessed wherever new facilities are set up.

Older fish farming facilities where fish are kept in basins on land may be improved by enhancing the through-flow of water, with the help of water recirculation techniques involving fish-sludge sedimentation pockets and other technical solutions. New land-based facilities may be built according to the self-cleansing principle to enable the recirculation of water or other favourable processes. The usage of water by such fish farming facilities should be monitored to avoid the unnecessary use of water, with due consideration given to the need for a sufficient supply of oxygen and other aspects of the well-being of the fish. Facilities that recirculate water efficiently have low emissions and need little new water, so they may be located far away from water bodies, in industrial areas for instance. Such locations also allow their wastewater to be suitably treated at industrial wastewater treatment plants.

The technical and economic viability of large fish farming facilities in the open waters of the sea should be assessed through pilot projects. Such facilities may be able to replace several smaller facilities where net enclosures are located in the inner and middle zones of the archipelago, thereby helping to reduce local harmful impacts and disturbance.

At present the investment and running costs of facilities that use new techniques, such as large facilities in the open sea and facilities where water is recycled, are high; but research and development work should aim to solve these problems.

1.5.3 Planning and controlling environmental protection in fish farming

The planning and supervision of environmental protection measures in fish farming should be developed jointly by the environmental authorities, the agricultural and forestry authorities, fish farmers, planners, the permit authorities and other users of lakes, rivers and the sea. The locations of fish farming facilities should be controlled through regional and local plans to ensure they are favourable with regard to environmental protection as well as the needs of fish farmers and other users of waters. Opportunities to designate suitable locations for fish farms through local master plans should be examined to ensure that alternatives are duly considered.

Reductions in emissions may enable increases in production in improved facilities. Larger facilities may also prove to be more economically viable. These developments could also facilitate the adoption of improved feeding techniques and other environmentally favourable measures, but considering the scale of investment necessary, there is a need for the future viability of such activities to be assured. This would involve making operating permits longer, but in such cases permits could be issued subject to the adoption of water protection improvement plans for their time frames.

Inspection procedures for fish farming facilities should be developed to make them more cost-effective, and to ensure that environmental loads and their impacts can be reliably assessed.

Actors

The SW Finland Regional Environment Centre, the Ministry of the Environment, the Ministry of Agriculture and Forestry and interest groups should co-ordinate research and development work related to environmental protection in fish farming. Research institutes, universities, other higher educational institutions, consultants and fish farming firms will be responsible for the practical preparation and implementation of R&D projects.

The feedstuffs industry should develop products that burden the environment less. Feeding equipment providers should work to improve feeding techniques and environmental protection.

When issuing permits, the environmental permit authorities should fully consider the need to apply best available techniques and best environmental practices, and any opportunities to control the locations of facilities favourably. The regional environment centres should improve the official statements they issue for the permit authorities, as well as their supervisory work, the conditions for their support for environmental protection measures, and controls over the locations of facilities.

Fish farmers should strive to adopt best available techniques and best environmental practices, while also participating in the planning and implementation of water protection measures.

The regional Centres for Employment and Economic Development should promote best available techniques and best environmental practices, and provide funding support for the planning of the locations of facilities.

Municipalities will participate in joint planning procedures together with other stakeholders, and also assess suitable planning options.

Time frame

The time frame for the implementation of these measures is the period 2005-2015, and they will be adopted as the relevant technology is developed both on a voluntary basis, and as a condition for the renewal of permits.

1.6 Reducing nutrient loads by restoring watercourses

The active involvement and initiatives of citizens, organisations and the municipalities are crucial where the restoration of watercourses is concerned, but the government will provide both financial and expert support for watercourse restoration work in prioritised sites. Work supported by the State will focus on watercourses where reductions in nutrient loads can effectively improve the state of waters downstream and the Baltic Sea.

Measures and actors

Citizens, municipalities, organisations, associations and fisheries district authorities should create initiatives and implement small-scale restoration schemes in practice.

The regional environment centres will issue official statements on such projects, and participate in their planning and implementation together with the municipalities, other authorities and other organisations involved, providing expert assistance as necessary. The Finnish Environment Institute is involved in training and development work in this field.

The Ministry of the Environment and the Ministry of Agriculture and Forestry have overall responsibility for watercourse restoration activities and the channelling of the related State funding.

Time frame

Restoration work should be carried out continuously, and the planning of the most urgent projects with regard to the need to improve the state of watercourses and the Baltic Sea can begin rapidly. Restoration work will continue according to needs and the availability of resources without specific deadlines.

1.7 Reducing nutrient leaching from commercially managed forests

The nutrient loads entering watercourses from commercially managed forests can be further reduced through measures to prevent and reduce soil erosion and other leaching of nutrients from forests. Forest management practices can be controlled through planning and the provision of advice, particularly with regard to work on drainage ditches, the sparing of shelter belts during logging, and specific measures required due to local conditions in certain forest sites.

Training and improved publicity with regard to environmental protection in farming and forestry should be jointly organised to further improve co-operation beween the regional environmental, agricultural and forestry authority officials, forest workers and organisations, and other interest groups.

Actors

Forest owners are responsible for the practical implementation of measures. The Ministry of Agriculture and Forestry, Metsähallitus and the regional environmental and forestry authorities will promote this work through controls and by providing advice. The Ministry of the Environment and the regional environment centres will monitor the impacts of measures, and issue official statements. The municipalities will also issue statements. The Finnish Forest Industries Federation and advisory organisations will support such work.

Time frame

Continuous

1.8 Reducing nutrient loads and their impacts in peat extraction

Water protection measures in the peat extraction industry are to be implemented according to the programme of Water Protection Targets for 2005, and by applying the related environmental protection guidelines issued by the Ministry of the Environment in 2003.

Future peat extraction work should be carried out in areas where peat is already extracted, or other peatlands that have already been ditched, and not in the immediate vicinity of watercourses.

The most widely used measures to reduce nutrient loads from peat extraction sites include the peripheral ditches built around extraction sites, and sludge basins, sludge barriers and sedimentation ponds built along the ditches around and across sites. Dams built to control peak runoff are also being more widely used nowadays to collect solid particles and the nutrients attached to them. The most common way to capture dissolved nutrients is to redirect runoff over a nearby slope where vegetation will absorb the nutrients it contains. Other possible methods not yet widely applied in Finland include feeding water into areas planted with suitable vegetation, chemical nutrient removal, and channelling and distributing runoff so that it runs into the ground in nearby areas with

mineral soils. New nutrient removal methods should also be continuously developed and adopted.

Environmental loads from peat extraction sites vary annually, seasonally and according to their geographic location. Even in winter, when the surface is frozen at most sites across Finland, nutrients and solid particles can be leached into watercourses. New solutions are particularly required to reduce nutrient loads during the winter, and during the rehabilitation of peat extraction sites. Such equipment and methods should be designed to allow water to be pumped and moved even during the winter freeze.

The condition and effectiveness of water protection structures should be regularly monitored, with any observed defects rectified immediately. Carrying out renovation and maintenance work in the right order and at the right time of year can reduce the consequent environmental loads considerably.

To reduce the peak nutrient loads typical during the latter stages of peat extraction, suitable extraction techniques and practices should be selected for each area well in advance, with full consideration given to any opportunities to make favourable changes in water protection structures and drainage systems. This enables the final stages of peat extraction to be completed and the site prepared for its future use without delay.

Actors

In improving environmental protection in peat extraction, the most important actors are the firms involved in this work, and their associations: Finnish Peat Producers ry, and the Association of Finnish Peat Industries.

The Ministry of Trade and Industry is responsible for Finland's energy policies, the Ministry of the Environment drafts environmental protection policies related to peat extraction, and the Environmental Administration processes permits and runs the permit system.

The Ministry of the Environment additionally sets national land use objectives, and the planning authorities are responsible for land use planning at various levels.

Time frame

Improving environmental protection in peat extraction is a continuous process.

1.9 Reducing wastewater emissions from ships and boats

Measures and actors

The Ministry of Transport and Communications, the Ministry of the Environment and the Finnish Maritime Administration draft legislation to promote the recovery and suitable treatment of wastewater from ships and boats in harbours. These authorities also ensure that this legislation is duly adapted to meet Finland's international commitments, and oversee the implementation of national and international decisions, while also participating in the development of related international agreements.

Ports and harbours (particularly harbours for smaller boats) should develop their waste collection facilities and waste management plans to ensure they keep up with current legislative requirements.

The environmental authorities should draft guidelines to help and encourage harbours to prepare their waste management plans and set up the necessary collection facilities.

Shipping companies must adopt and improve suitable environmental management systems, with the help of government subsidies where necessary. Shipping companies, municipalities and boating clubs must all fully observe the relevant legislation and regulations.

Time frame
New legislation on wastes from ships and boats will be enacted during 2006. Other related activities are carried out continuously.

1.10 Reducing atmospheric nutrient depositional loads

1.10.1 International co-operation and national measures to reduce land-based nitrogen emissions that end up in the Baltic Sea

In 1999 Finland ratified the United Nations Economic Commission for Europe Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, which limits emissions of sulphur, nitrogen oxides, ammonia and volatile organic compounds (VOCs).

Finland is also currently implementing a national air protection programme, approved by the Government on 22.9.2002, in line with the EU Emissions Ceilings Directive 2002/81/EC, which addresses the same pollutants as the Gothenburg Protocol, enabling its ratification. The programme's measures also help to implement Finland's other air pollution policies.

Actors
The Ministry of the Environment, the Ministry of Trade and Industry, the Ministry of Transport and Communications and the Ministry of Agriculture and Forestry are responsible for the drafting and implementation of the necessary legislation.

Time frame
The Gothenburg Protocol obliges signatories to carry out the measures needed to reduce emissions by 2010 to levels defined with reference to their levels in 1990. The national measures to be implemented by Finland to fulfil the requirements of EU legislation during this period will be sufficient to meet the requirements of the protocol. Finland has already achieved reductions in nitrogen emissions corresponding to two-thirds of the reductions needed by 2010.

1.10.2 Reducing emissions of nitrogen oxides from ships in the Baltic Sea

Measures and actors
Finland ratified the air pollution annex of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) on 31.3.2005, and the annex came into force on 19.5.2005. Finland is continuing to lobby for still tighter controls on nitrogen oxide emissions to be incorporated into this international agreement. Municipalities may meanwhile impose environmental harbour fees designed to provide incentives for emission reductions.

The Ministry of the Environment and the Ministry of Transport and Communications draft the related national legislation and oversee its implementation, while also working to improve EU regulations and other international legislation. The Finnish Maritime Administration is responsible for the preparation, implementation and supervision of technical controls on vessels. Municipalities apply financial incentives through their harbour fee systems.

Time frame
Measures should be implemented over the two-year period 2005-2007.

1.11 Improving wastewater treatment standards in neighbouring countries

1.11.1 Reducing wastewater loads from St Petersburg

Finland is actively working to help to reduce the nutrient loads originating from the largest single point source around the Gulf of Finland – wastewater from the city of St Petersburg. Finland promotes cost-efficient investments in environmental protection, and supports the efforts of the St Petersburg Water Authority (Vodokanal) to use sustainable funding from external sources. Technical support from Finland will help to make the Water Authority to become financially self-sufficient and to meet environmental protection targets.

The most important current aim of international co-operation so far has been to see through the completion of the SW St Petersburg Wastewater Treatment Plant and its sludge incineration facilities. The next key internationally financed water protection investment involves the completion of sewage collection networks for northern parts of the city. This work also involves promoting sustainable funding solutions, the comprehensive planning of the necessary extensions to the existing sewerage network, improvements at the existing sewage treatment plant to enhance nutrient removal and cope with new loads, and the implementation of all the necessary investments. Finland also actively promotes cost-effective environmental projects in Sestroretsk and other smaller towns around the St Petersburg District. Finland's technical support projects aim to enhance the administrative, economic and financial capacities of water service providers and promote the effective use of their facilities.

Actors

The Ministry for Foreign Affairs has overall responsibility for Finland's co-operation with neighbouring countries, and is also jointly responsible together with the Ministry of the Environment for the funding of projects. The Ministry of the Environment promotes, prepares and funds environmental investments and technical support projects. The City of St Petersburg and Vodokanal are responsible for the practical implementation of projects.

International financial institutions, the European Union and other individual countries are also involved in the preparation and partial funding of investment projects.

Time frame

The SW St Petersburg Wastewater Treatment Plant is to be completed in 2005. A new project for the completion of the sewage collection network in northern districts of the city is currently being prepared, under the leadership of the Nordic Investment Bank. Vodokal aims to ensure that all of St Petersburg's municipal wastewater is treated to the standards recommended by the Baltic Marine Environment Protection Commission (HELCOM) by 2015.

1.11.2 Reducing wastewater loads from other parts of Russia and from the Baltic Countries

Finland aims to help the Baltic Countries, Estonia, Latvia and Lithuania, as new EU member states, to reduce their nutrient inputs to the Baltic Sea, by promoting the transposition of EU environmental legislation, especially with regard to water protection, and by increasing their capability to take advantage of related support provided by the EU and other funding sources.

Finland generally operates in partnership with other funding providers, and is particularly working to improve Estonia's capacity to effectively use larger-scale investment support, for instance in the preparation of water protection projects and institutional improvements related to investment projects.

Finland also promotes efforts to raise wastewater treatment standards in smaller Russian municipalities within the catchment area of the Baltic Sea to the levels recommended by HELCOM, in order to improve the state of the coastal waters of the Gulf of Finland.

Regional co-operation with municipalities in the Leningrad District is based on the EU Northern Dimension Initiative, through which the regional administration of the Leningrad District, the Nordic Investment Bank, Sweden, Denmark and Finland are preparing and financing joint water services projects for towns within the Leningrad District. This programme is also funded from the Northern Dimension Partnership Fund. Finland aims to promote reductions in wastewater loads from urban areas, energy savings and improvements in the administrative capacity of water service providers. Loan agreements for the first phase of the programme are due to be finalised during 2005.

In the Republic of Karelia, Finland particularly aims to promote investments in wastewater treatment in the cities of Petroskoi and Sortavala. In Petroskoi, Finland is working to promote the channelling of external support funds into improvements in water services by providing technical support and small-scale investment support for wastewater collection and treatment facilities. In Sortavala, Finland is helping to pave the way for a new EU-funded wastewater treatment plant by contributing to improvements in wastewater collection and the use and maintenance of existing facilities.

In the Novgorod and Pihkova Districts Finland is promoting the implementation of international water protection co-operation programmes, and also providing the necessary support for water protection investments in municipalities within the catchment area of the Baltic Sea.

Finland is also working to promote the uptake of the new EU neighbourhood policy instrument in Russia with regard to water protection projects in the catchment area of the Baltic Sea.

Actors

The Ministry for Foreign Affairs co-ordinates regional co-operation and the related programmes, and is also jointly responsible together with the Ministry of the Environment for the funding of projects. In the Baltic Countries, commitments made before the entry into force of the new regional co-operation strategy will continue to be met, but support will not be provided for any new projects from the regional co-operation funds of the Ministry for Foreign Affairs.

The Ministry of the Environment promotes, prepares and funds environmental investments and technical support projects.

The Russian regional authorities and the national and local governments in Estonia are responsible for the practical implementation of investment projects.

International financial institutions, the European Union, other individual countries and private or public sector organisations are also involved in the preparation and partial funding of investment projects.

Time frame

Investments in the four towns covered by the Northern Dimension Initiative programme will be implemented during the period 2005-2007. Water services projects for the towns of Vyborg and Priozersk are in the pipeline, and projects in Sortavala and Petroskoi are already under way.

Reducing risks caused by hazardous substances

2

2.1 Reducing emissions of hazardous substances through national measures

Finland ratified the Stockholm Convention and the UN/ECE Protocol on Persistent Organic Pollutants (POPs) in September 2002. The POPs Protocol came into force on 24.10.2003 and the Stockholm Convention on 17.5.2004. The first conference of parties to the Stockholm Convention was organised in 2005. EU agreements have been implemented according to the European Parliament and Council Decree on POPs (850/2004), which came into force in July 2004.

The European Community has limited the use of hazardous brominated flame retardants and chlorinated paraffins, and the related directives have been implemented by Finland through Government Decree 416/2003, which has been in force since the beginning of 2004. In June 2003 the European Parliament and Council approved a directive limiting the use of hazardous nonyl phenol and nonyl phenol ethoxylate, which has been enforced in Finland through Government Decree 596/2004 since the beginning of 2005.

Finland's environmental administration has begun to prioritise hazardous substances requiring action, and this work will continue over the next few years. The aim is to designate priority status for groups of substances that are not yet prioritised under present procedures, including substances released during the use of products or various processes. Environmental permit procedures are already being modified to ensure more information is obtained on emissions and for other monitoring purposes.

Emissions are being reduced through both legislative controls, and voluntary measures taken by industry. Companies are now monitoring their own environmental impacts more systematically, thanks to the spread of environmental management systems. About 85% of the more than one hundred firms signed up to the chemical industry's Responsible Care Programme currently operate some form of environmental management system. Finland's Chemicals Act obliges businesses to choose the safest possible chemicals and methods, and this obligation is being realised through corporate research and product development.

Important tools for planning and implementing emission reductions include the EU Water Framework Directive and its doughter directives, and the measures specified in Finland's Environmental Protection Act. A proposed directive setting environmental quality norms for substances prioritised at community level is due to be approved in 2005, and this directive will be updated whenever the EU priority lists are modified.

Actors

The Ministry of the Environment will oversee the due implementation of the ECE POPs Protocol and the Stockholm Convention. The Finnish Environment Institute will participate in the preparation of the necessary measures. The Ministry of the Environment will also draw up a decree concerning national priority substances, as stipulated in the Water Framework Directive. Environmental quality norms will be enforced for substances prioritised at national level.

In 2004 the Ministry of the Environment issued guidelines on the dredging and disposal of sediments, defining national quality criteria for the suitable use of dredged materials. Criteria have been included concerning concentrations of tri-butyl tin (TBT), certain heavy metals, arsenic, PCBs (polychlorinated biphenyls), PAH compounds (polyaromatic hydrocarbons), mineral oils, certain pesticides (DDT + DDD + DDE) and polychlorinated dibenzo-dioxins and furanes.

More information and experience will be needed before guideline limits can be defined in new legislation, particularly concerning organic tin compounds. Trends in combustion techniques and fuels must also be closely monitored with a view to reducing hydrocarbon emissions from smaller boats.

The Finnish Environment Institute and the regional environment centres should co-operate more closely on environmental permit procedures to ensure that opportunities to prevent and reduce emissions are duly considered.

In processing environmental permits, the permit authorities must carefully consider issues related to hazardous substances, and set specific permit conditions on a case-by-case basis.

The Finnish Environment Institute is to complete definitions of norms concerning dioxins and furanes, and will also model the pathways of chemicals in sediments in the River Kymi. The SE Finland Environment Centre will complete its related risk assessment on the basis of new data from the Finnish Environment Institute, enabling a general restoration plan to be drawn up and submitted for official approval. Ongoing research projects are currently focussing on issues including dioxin concentrations in fish, and sources of sensitivity to dioxins.

In industry, voluntary environmental programmes and environmental management systems must give more emphasis to the need to reduce emissions of hazardous substances, and ensure that the necessary measures are better targeted.

The manufacturers, importers and users of chemicals should meet their legal obligation to choose the safest available chemicals and methods, as stipulated in the Chemicals Act.

Time frame

The use of environmentally harmful chemicals and emissions of dioxins, furanes and other POPs will be controlled according to the schedules defined in the relevant EU legislation and international agreements. A programme for the implementation of the Stockholm Convention and the ECE POPs Protocol will be drawn up during 2006.

Measures to reduce emissions of substances prioritised at community levels will be carried out according to the schedule defined in the Water Framework Directive. If no joint agreement is reached on suitable scheduling at community level, member states are obliged to define environmental quality norms and schedules by 2007 for national measures to reduce emissions of substances prioritised at community level. A decree on substances prioritised by Finland at national level is to be passed during 2005.

Measures to combat dioxin pollution in the River Kymi will continue during 2005.

A research programme funded by the Academy of Finland was due to be completed by the end of 2005.

2.2 Improving the monitoring of emissions and environmental concentrations of hazardous substances

Emissions and concentrations of hazardous substances must be effectively monitored with special consideration given to the ecological sensitivity of the

Baltic Sea. The resultant data should be used to prioritise substances that are most important in terms of their impacts on the marine environment, to select substances for more detailed risk analyses, and to target measures where the risks are greatest. The prioritisation methods used by the EU and in international agreements protecting the seas are designed to allow such prioritisations to be applied nationally according to local conditions. The related development work has considered conditions in Finland and the Baltic Sea and the data available from national sources, and applied this information in the preparation of a list of substances to be prioritised at national level in Finland, in accordance with the Water Framework Directive. This development work is to be continued and enhanced.

Actors

The Ministry of the Environment will oversee assessments of opportunities to obtain the additional funding needed to improve environmental monitoring. The Finnish Environment Institute will conduct a project designed to improve the environmental monitoring of hazardous substances, applying the recommendations given in the final report of the related 'Haaste' project.

The environmental permit authorities should incorporate proposals made in a report submitted by a Ministry of the Environment working group in 2004 concerning how environmental permit procedures could be improved to enhance the inspection of hazardous substances.

The Ministry of the Environment will continue to finance the environmental cluster research programme "An eco-efficient society", which aims to predict problems related to hazardous substances, to identify problematic substances, and to improve monitoring. This project has been implemented in co-operation with the Finnish Environment Institute, the regional environment centres, the Confederation of Finnish Industries, and sub-contracting laboratories.

Time frame

The monitoring programmes required by the EU Water Framework Directive must be running by the end of 2006.

Measures recommended in a project assessing the need for improvements in environmental monitoring are to be initiated by the beginning of 2005.

An environmental cluster project is due to be completed by the end of 2005.

2.3 Intensifying international co-operation to reduce emissions of hazardous substances

The Ministry of the Environment has participated together with Sweden and the Nordic Council of Ministers in a project examining the quantities of chemicals used in the Baltic Countries, and providing training on chemicals issues for administrators and industry in the region. This project aims to promote the implementation of HELCOM's hazardous substances strategy, as well as other regional efforts to reduce the risks associated with hazardous substances.

In June 2002 Finland signed the International Convention on the Control of Anti-Fouling Systems on Ships (AFS Convention) of the International Maritime Organisation (IMO), which bans and phases out specific environmentally harmful anti-fouling practices, such as the use of paints containing tri-butyl tin. Assessments of the concentrations and impacts of anti-fouling substances and measures to reduce harmful impacts are under way.

The Ministry of the Environment and the Finnish Environment Institute have been taking part in Arctic Council projects involving inventories of equipment containing PCB and obsolete stocks of pesticides, and promote the suitable treatment of such stocks. These projects will also help Russia to implement international conventions on POPs. Finland is also involved in an Arctic Council project focusing on mercury emissions and the mapping of their sources.

Actors

The Ministry of the Environment, the Ministry of Transport and Communications, the Finnish Maritime Administration and the Finnish Environment Institute will continue their co-operation under the auspices of HELCOM to ensure that the measures needed around the Baltic Sea in addition to the implementation of the IMO's AFS Convention will be suitably defined and implemented in each country.

Through international co-operation, the Ministry of the Environment and the Ministry for Foreign Affairs will strive to assist neighbouring countries, especially Russia and Estonia, in restoring areas where wastes containing hazardous substances have been dumped, in suitably treating obsolete stocks of chemicals (including equipment containing PCBs) and in other such activities.

The Finnish Environment Institute and other Finnish experts will take part in seminars and training sessions held in Russia and the Baltic Countries in relation to the implementation of international agreements on POPs.

Time frame

The IMO approved a ban on the use of paints containing organic tin compounds (TBT) on vessels in 2003. A total ban on the use of TBT compounds is expected by 2008. These regulations are implemented in the EU through decrees passed by the European Parliament and Council, and directives issued by the European Commission. Finland was due to ratify the IMO Convention in autumn 2005.

In accordance with the Stockholm Convention on POPs, the use of most types of equipment containing PCBs is to be phased out completely by 2025.

The growing risks associated with the increasing transportation of oil and chemicals on the Baltic Sea, and particularly the Gulf of Finland, represent the same level of serious threat to the ecological state of the sea as eutrophication. It is vital to organise the shipping of oil and chemicals and related operations in oil terminals to minimise risks and the possible damage to aquatic and coastal ecosystems. Other activities carried out around the Baltic Sea that require measures to protect the environment include construction, the extraction of materials for use in construction, other types of shipping and boating, the management of shipping lanes, tourism, and other recreational activities.

Reducing the harmful impacts of the use of the Baltic Sea

3

3.1 Reducing risks associated with shipping

3.1.1 Reducing the risks of oil and chemical spills by improving general navigational safety in the Gulf of Finland

Steps must be taken through the IMO to phase out the use of single-hulled tankers, and ban the transportation of heavier oil grades in single-hulled tankers. Communications between the EU and Russia concerning risks associated with oil transportation should be enhanced to speed the elimination of such risks and find new shipping routes.

The HELCOM countries' jointly agreed winter shipping traffic restrictions, ice-classification requirements and rules on when ships must be assisted by ice-breakers should all be enforced in the Gulf of Finland.

The official Gulf of Finland Reporting System (GOFREP) must be implemented as approved by the IMO. This has already been set up in Finland in practice, and was put into operation on 1.7.2004.

The weather and ice reporting services provided for shipping should be enhanced, together with other services that improve safety. Action must also be taken to set up a network of safe harbours according to the existing plan. Further measures must also be carried out in accordance with the IMO's designation of the Baltic Sea as a Particularly Sensitive Sea Area (PSSA).

Actors

The Ministry of Transport and Communications and the Finnish Maritime Administration are responsible for improvements in navigational safety in Finnish waters and the Baltic Sea.

The Finnish Meteorological Institute and the Finnish Institute of Marine Research provide the services needed by ships and boats.

The Ministry of the Environment, the Finnish Environment Institute and the whole environmental administration are responsible for the surveying and publicising of navigational risks.

Time frame

Improving navigational safety is a continuous process.

3.1.2 Reducing deliberate illegal releases of oil

Measures

The HELCOM Strategy for Port Reception Facilities for Ship-Generated Wastes and Associated Issues must be duly implemented in Finland and the other countries around the Baltic, to prevent deliberate releases of oil. This strategy includes the no special fee system, obligations to hand over wastes, and a harmonised system of fees and fines, as well as measures to support improvements in ports' waste reception facilities. To implement this HELCOM strategy in Finland, revised legislation on ship-generated wastes must be enforced in practice, and its impacts evaluated.

New legislation must be enacted and enforced on the compulsory fines to be paid for infringements of the regulations prohibiting releases of oil or oily mixtures into the sea. Opportunities for all the countries around the Baltic Sea to apply similar fines should be examined.

Steps should be taken to toughen EU legislation on ship-generated wastes, with national legislation also drawn up to comply with EU decisions.

Surveys of wrecks in Finnish waters should be continued wherever there are risks of oil leakages. Oil must be safely removed from wrecks where risks are serious.

Actors

The Ministry of the Environment, the Ministry of Transport and Communications and the Finnish Maritime Administration are responsible for the implementation and improvement of the HELCOM Strategy.

The Ministry of Justice, the Ministry of Transport and Communications and the Ministry of the Environment are responsible for setting up fine systems, and for co-operation through the EU.

The Finnish Environment Institute and the Ministry of the Environment are responsible for the prevention of oil leakages from wrecks.

Time frame

Continuous

3.1.3 Improving capacity to deal with accidental oil and chemical spills

During 2005 and 2006 two specially converted multi-purpose coastguard/oil pollution combating vessels will be taken into use. A multi-purpose icebreaker also equipped to combat oil pollution will enter into service in the Gulf of Finland during 2007, as specified by the Government Programme and the ministerial economic policy board.

In conjunction with the regional plan for the establishing of joint regional capacity to combat oil and chemical spills in the Gulf of Finland, the need for coastal municipalities to improve their pollution combating capacities in line with the increasing risks of oil transportation should be assessed. The regional rescue services offices should draw up plans for dealing with oil spills in their region. The use of information from submarine surveys and other GIS data in oil pollution prevention should be improved, especially with regard to the designation of sensitive waters, and the prioritisation of preventive measures.

Practical oil pollution combating exercises will be intensified in Finland's shallow archipelagos, so as to enhance co-operation between the environmental administration, the regional rescue services, other national and local organisations, and groups of specially trained volunteers. The need for a centre of expertise in oil pollution prevention should be assessed.

Support will also be provided to boost Estonia's and Russia's capacities to combat chemical spills in the Gulf of Finland. Aid will be provided for Russia's oil pollution prevention organisation within the limits defined in budgets for regional co-operation.

Actors

The Ministry for Foreign Affairs is responsible for the co-ordination and programming of regional co-operation, and also together with the Ministry of the Environment for project funding.

The Ministry of the Environment, the Finnish Environment Institute, the regional environment centres and regional rescue services all administer oil pollution prevention.

The Finnish Maritime Administration will be the main user of the planned multi-purpose icebreaker, as well as existing shipping lane maintenance vessels and offshore coastguard vessels.

The Uusimaa Regional Environment Centre serves as the co-ordinating authority for the joint planning of oil pollution prevention in the Gulf of Finland.

The Defence Forces and the National Border Guard also serve an auxiliary administrative function with regard to pollution prevention.

Time frame

The new pollution combating vessel for the Gulf of Finland, Seili, has been in use since 2004. The coastguard vessels Tursas and Uisko should both be converted to enable them to fulfil the same functions by 2005 and 2006. Finland will provide continued support during 2005 to improve Estonia's oil pollution combating capacity in the Gulf of Finland, using regional co-operation funds on the basis of earlier commitments. A tender for services to be provided by a multi-purpose ice-breaker was organised in January 2005, and decisions with regard to the acquisition of a suitable ice-breaker are to be made urgently.

3.2 Reducing the harmful impacts of shipping, boating, coastal developments and the recreational use of the sea

3.2.1 Planning the locations of shipping lanes and the work done to maintain them so as to minimise harmful environmental impacts

Measures and actors

The harmful environmental impacts of the work done to maintain shipping lanes should be reduced through controls over their location, planning and scheduling, with such controls extended to cover smaller scale work as well as the larger projects already covered by the Act on Environmental Impact Assessments. The Finnish Maritime Administration is responsible for maintaining major public shipping lanes, and the municipalities administer harbours and local public boating routes.

In 2004 the environmental administration, the maritime authorities, and harbour and dredging contractors jointly drafted guidelines to minimise the harmful impacts of dredging and the disposal of dredged material. The guidelines also contain qualitative criteria on hazardous substances in dredged materials to be disposed of at sea. The maritime and environmental authorities jointly organise the monitoring of concentrations of hazardous substances in such dredged materials. The environmental administration will assess the need for changes in the Water Act and other possible measures to reduce the harmful impacts of smaller-scale dredging.

Time frame

The planning and maintenance of shipping lanes are continuous processes.

3.2.2 Reducing the harmful impacts of vessels in motion

Measures and actors

The Finnish Maritime Administration monitors the impacts of shipping traffic on coastal and island ecosystems, and also sets speed limits and restrictions on the size of vessels where necessary.

The movements of smaller boats in the archipelagos should be increasingly channelled along designated boating routes. Municipalities should initiate speed limits in waters where such measures are necessary. Boating clubs should increasingly inform their members about the physical impacts of boating on marine ecosystems, and about rules and restrictions affecting routes and mooring sites. The regional environment centres and the Finnish Maritime Administration may limit boating in certain waters on a local scale to promote safety and environmental protection.

In co-operation with shipbuilders, steps will be taken to design ships so as to reduce their physical impact on the environment, in terms of waves, turbulence, suction and pressure, noise etc. Such developments can also be encouraged through financial incentives where necessary.

Time frame

Continuous

3.2.3 Controlling boating, tourism and other recreational activities

Measures and Actors

The regional and municipal authorities control the recreational use of marine waters, assessing current use levels and trends, as well as the capacities of specific areas, especially waters sensitive to overuse. Shipping lanes and boating routes and centres can be marked on regional land use plans and local master plans.

Metsähallitus draws up land use and management plans for protected areas, including waters. Metsähallitus and the municipalities provide tour operators and the public with information about public access to natural areas, regulations and restrictions in protected areas, and the facilities provided for boaters and other visitors. The Ministry of Agriculture and Forestry and Metsähallitus are responsible for the provision of guidance and facilities for boaters and other visitors in state-owned waters, protected areas and recreational areas. Metsähallitus will continue to equip protected areas in the archipelago with basic recreational facilities in accordance with related plans approved in 2001. Municipalities should increasingly co-operate to enhance the recreational use of the archipelago.

The Ministry of the Environment and the Finnish Environment Institute will support the "Blue Flag" environmental scheme, and ensure that the related surveys can be continued. The organisation "Keep the Archipelago Tidy" is responsible for the practical running of the scheme in Finland. The municipalities, the Finnish Maritime Administration, Metsähallitus, the Finnish Tourist Board, tour operators and boating organisations are all responsible for the provision of information and advice and the sustainable development of the recreational use of the sea.

The Finnish Maritime Administration has overall responsibility for shipping, while the movements and actions of vessels are supervised by the Finnish Maritime Administration, the Police, the National Border Guard and the customs authority. The Ministry of the Environment and the regional environment centres administer controls related to nature conservation and regional co-operation, including Finland's work within HELCOM. The regional environment centres also

administer the controls that affect vessels outside shipping lanes and boating routes.

Time frame
Continuous

3.2.4 Reducing the harmful impacts of marine construction and the extraction of sand and rock from the seabed

Measures and actors
All extraction of sand or rock from the seabed is subject to environmental impact assessments and environmental permits. Metsähallitus and other actors will jointly draft a comprehensive plan covering the extraction of sand and rock from all of Finland's coastal waters so as to control the impacts of such activities.

Finland will act within HELCOM on issues related to sand extraction.

Environmental impacts should be assessed wherever marine construction projects such as gas pipelines and wind power plants are planned, with suitable measures taken to reduce harmful impacts.

Metsähallitus administers reserves of marine sand and rock. The regional authorities and the Geological Survey of Finland draw up surveys and exploitation plans for rock reserves on the seabed. The regional environment centres control and supervise environmental impact assessments and the assessments of the impacts of the designation of Natura sites, also providing related official statements. The environmental permit authorities deal with permit issues.

Time frame
The preliminary surveys needed for the drafting of a sand extraction plan are to be conducted urgently.

Activities are otherwise continuous.

3.3 Improving the state and preservation of coastal areas with the help of regional and land use plans and strategies for coastal zones

3.3.1 Developing and harmonising the use of coastal zones to preserve and improve the state of marine and terrestrial elements of the coastal zone

Measures
Finland will draft a national strategy for integrated coastal zone management (ICZM) in line with the recommendations of the European Parliament and Council. The strategy will be drawn up in co-operation with other key actors operating in coastal zones.

Finland will co-operate with other coastal regions around the Baltic and through HELCOM, VASAB 2010:n (Vision and Strategies around the Baltic Sea Region 2010) and the Baltic 21 sustainable development programme to implement the EU recommendations on ICZM, and to increase levels of expertise. Russia may also be involved in such co-operation.

Actors

The Ministry of the Environment will draft a strategy for coastal zones in co-operation with the various sectoral authorities, regional authorities, regional environment centres, municipalities and NGOs.

Metsähallitus, the regional environment centres and other stakeholders will plan coastal and marine protected areas.

Time frame

Finland will report to the Commission on progress with the implementation of the ICZM recommendations in early 2006.

3.3.2 Preserving and improving the state of the Baltic Sea and its marine life through regional planning

Measures

The regional authorities will incorporate objectives related to the need to preserve and improve the state of the Baltic Sea and its marine ecosystems in their local regional plans and other regional developments. Regional planning will be linked to the planning of integrated coastal zone management, on the basis of assessments of each region's natural and cultural values, the nutrient loads entering the sea from each region, and the need to reduce harmful environmental impacts. Regional planning processes can form the basis for regional land use and management plans, as well as more detailed local land use planning.

Regional land use planning procedures must observe Finland's national land use objectives. The regional environment centres support regional planning by providing the necessary environmental expertise.

Actors

The Ministry of the Environment promotes, guides and supervises efforts to realise regional land use objectives in with assistance from the regional environment centres.

The regional authorities must ensure that regional land use plans duly consider the national land use objectives, and contribute to their realisation.

Time frame

Continuous

3.3.3 Preserving and improving the state of the Baltic Sea and its marine life through municipal planning

Municipalities will incorporate objectives related to the need to preserve and improve the state of the Baltic Sea and its marine ecosystems in their local shore plans, other local master plans, local detailed plans and other land use planning procedures. In protected areas the corresponding tasks will be carried out by Metsähallitus and the regional environment centres. Where necessary, municipalities will create local action plans to improve the marine environment and ensure that coastal areas are sustainably used and managed. Such plans should be closely linked to local agenda 21 programmes. Municipal planning must also duly consider Finland's national land use objectives and the requirements set out in regional land use plans.

As part of the implementation of the Land Use and Building Act, the effectiveness of local master plans and the related public participatory planning processes should be monitored with regard to the need to safeguard sufficient areas of shoreline for free public and recreational use – with measures taken where necessary to ensure that shores are used sustainably.

Actors

The Ministry of the Environment is responsible for legislation on land use planning and building developments.

The regional environment centres promote and guide municipal land use planning and controls over building developments, particularly ensuring that plans and developments duly comply with national and regional land use objectives.

The municipalities are responsible for land use planning and controls over building developments in their local areas.

Time frame

Continuous

The needs of threatened species and species in need of special protection should particularly be considered in the management of marine and coastal ecosystems, and steps should be taken to ensure that their habitats no longer decline. The habitats of threatened species and populations can be actively restored. Another objective is to improve the conditions for other species of marine and coastal habitats. Steps should also be taken to reduce the harmful impacts of invasive species.

4 Preserving and increasing biodiversity

4.1 Preserving and increasing biodiversity in marine and coastal habitats

4.1.1 Protecting and preserving marine and coastal habitats and species to ensure they are biologically and biogeographically representative

Implementation

The action plan for the marine ecosystems inventory programme (VELMU), which examines the occurrence and distribution of marine habitats and species, will be jointly implemented by various ministries, their administrative organisations and other stakeholders. The inventory programme aims to identify ecologically valuable marine areas, to indicate activities that could endanger marine ecosystems in such areas, and to reveal where marine ecosystems have already been damaged. The inventory will also survey abiotic natural resources such as submarine deposits of sand and moraine. The ultimate objective of the programme is to preserve the biological and geological diversity of marine habitats, and prevent any decline in biodiversity.

During the inventory a Baltic marine habitat classification system will also be devised, with reference to existing national and international systems such as EU-EUNIS and HELCOM's red-listed habitats.

The ongoing evaluation of the conservation status of biotopes in Finland will also examine trends and threats affecting marine and coastal biotopes. The results of this project will be applied to ensure that protection and management measures are directed to where they are most needed.

The need to protect marine ecosystems must also be duly considered wherever marine and coastal areas are developed or managed. Suitable management measures for biotopes and species should be devised and carried out. Finland will also promote such issues through co-operation within HELCOM and the EU.

Support will be provided for projects designed to survey and protect marine ecosystems in neighbouring regions. Co-operation on nature conservation between Finland and neighbouring countries will be improved, particularly concerning ecological surveys, and co-operation on the use and management of marine areas.

The ongoing evaluation of the present network of protected areas (the SAVA project) is examining the representativeness and comprehensiveness of existing protected areas, with regard to the conservation objectives defined for marine and coastal habitats. The project results will be applied in future projects to improve networks of protected areas. Monitoring methods will be improved, and suitable management measures will be applied to benefit biotopes and species in protected areas.

The marine habitat restoration work carried out by Metsähallitus, the environmental administration and private actors should particualarly focus on wetlands, estuaries, shore meadows and heritage landscapes along the coast.

Managing and restoring such habitats can help to preserve many threatened bird and plant species.

The Finnish Game and Fisheries Research Institute will develop new fishing techniques and equipment to minimise the damage done by seals to fishing tackle and catches.

Measures carried out under the Salmon Action Plan will be continued and improved in the Finnish salmon rivers covered by the plan. Special fishing methods will be devised to help exploit salmon from artificially introduced stocks, while safeguarding natural Baltic salmon populations. The inclusion in the Salmon Action Plan of more rivers with potential spawning and breeding areas will be considered on the basis of the results of ongoing salmon stock restoration trials.

Prospects for the monitoring of fish species of little commercial importance in Finland will be assessed jointly by the Ministry of the Environment, the Ministry of Agriculture and Forestry, the Finnish Environment Institute and the Finnish Game and Fisheries Research Institute.

Finland will actively lobby within the IMO for the signing of a binding agreement to restrict ballast water emissions. Finland will also work through the IMO and HELCOM to promote technical improvements designed to limit the spread of invasive species in ballast water, and related research. Invasive species should be included in current monitoring programmes wherever possible, to allow their ecological and economic impacts to be assessed.

Actors

The Ministry of Agriculture and Forestry, the Ministry of the Environment and other ministries will be responsible for Finland's international contacts, for promoting international agreements, and for improving legislation and enforcement.

Metsähallitus will participate in the acquisition and administration of protected areas (in State-owned areas), draft land use and management plans for protected areas, and take part in publicity and advisory work related to nature conservation. Metsähallitus is also actively involved in the implementation of the VELMU inventory of marine ecosystems.

The Finnish Environment Institute carries out research and monitoring work related to nature conservation at the national level, and also drafts and monitors conservation plans for threatened species. The Finnish Environment Institute also co-ordinates evaluations of the conservation status of biotopes, and participates in the implementation of the VELMU inventory of marine ecosystems.

The regional environment centres are responsible for environmental impact assessments, the acquisition, funding and inventories of protected areas, and the drafting of land use and management plans for protected areas. They also participate in publicity and advisory work related to nature conservation.

The Finnish Game and Fisheries Research Institute conducts research and monitoring related to fish populations and seals.

Other organisations actively involved in the VELMU Project Group and the inventory of marine ecosystems, in addition to the above-mentioned authorities, include: the Geological Survey of Finland, the Finnish Institute of Marine Research, the Finnish Border Guard, the Finnish Navy, the regional authorities, the fisheries officials of regional economic and employment centres, the Central Union of Agricultural Producers and Forest Owners (MTK), the Finnish Commercial Fishers' Association, the Academy of Finland, universities and polytechnics, the Finnish Museum of Natural History, the Finnish Maritime Administration, and various NGOs. Other organisations including the National Land Survey of Finland, water protection associations, local authorities and private businesses in the environmental field may also contribute to the implementation of the VELMU inventory programme.

The municipal and regional authorities are responsible for the related planning measures.

The regional economic and employment centres, fisheries units and municipalities with commercial fisheries are responsible for the maintenance of fish stocks, including statutory stocking measures, as well as the organisation and supervision of fishing.

Time frame

The VELMU inventory of marine ecosystems is due to be completed for all of Finland's coastal waters by the end of 2012. Inventories will be conducted in five regions. Inventory work in marine waters around the Åland Islands is to be conducted on the basis of separate negotiations with the autonomous provisional government.

The Ministry of Agriculture and Forestry is to prepare management plans for grey seal and Baltic ringed seal populations in Finnish waters by the end of 2005.

The breeding rates of natural migratory salmon populations in the rivers included in the Salmon Action Plan should be increased to at least half of their natural potential levels by 2010, in accordance with objectives defined by the International Baltic Sea Fishery Commission. Measures to restore salmon stocks in their natural rivers will also be continued after 2010.

A binding agreement on ballast water was approved within the IMO in 2004, and must be ratified as soon as possible.

5 Increasing environmental awareness

5.1 Encouraging favourable environmental attitudes and actions

5.1.1 Improving levels of knowledge about the protection of the Baltic Sea, and ensuring citizens' and interest groups' access to up-to-date information

Co-operation between different actors working for the Baltic Sea will be intensified and enhanced by improving information flows.

This enhanced co-operation can in turn improve the way existing and new information about the Baltic Sea is used, also in innovative new ways. Information can be more effectively channelled to businesses, educational institutes at various levels, and meetings held for local residents and the general public. Within the public administration, up-to-date information on the Baltic Sea should be used in various sectors, and incorporated into the annual report on Finland's natural resources and the environment, which is published together with the annual government budget. Special consideration should be given to the availability, reliability, updating and significance of data, so as to promote its wide-ranging application.

Suitable forms of co-operation must be found to help promote publicity, campaigning and public action on the protection of the Baltic Sea.

Actors

The Ministry of the Environment will promote the improved flow of information in co-operation with other ministries, the Finnish Environment Institute, the regional environment centres, the Finnish Maritime Administration, Metsähallitus, coastal municipalities, NGOs, industrial, forestry and agricultural organisations, and other stakeholders. Important international partners in this work include the European Union, the Union of Baltic Cities (UBC), HELCOM, and the Baltic 21 programme.

Time frame

Continuous

6 Research and development work related to the Baltic Sea

Decisions about the protection of the Baltic Sea can only be made effectively on the basis of wide-ranging information that enables the various needs and pressures on the marine environment to be balanced. Protective measures and their impacts can have very extensive socioeconomic repercussions. Many issues need to be examined through joint multi-disciplinary research.

Good planning and co-operation between funding organisations and research institutes is also needed concerning the co-ordination of research and development programmes and projects in different fields. Such co-ordination has so far been at least partly integrated into the Baltic Sea Research programme of the Academy of Finland (2003-2005) and the international BONUS funding agency network programme for scientific research around the Baltic Sea (2004-2007).

6.1 Finding ways to combat eutrophication

The eutrophication processes affecting coastal waters and the open sea are shaped by a combination of factors including the pathways of nutrients between the atmosphere, the catchment area of the sea, the coastal zone and open waters, as well as trends in nutrient loads and natural conditions. It is important to improve our knowledge of the flows of the excess nitrogen and phosphorus that lead to eutrophication (nutrient flows between different levels and elements of terrestrial and aquatic ecosystems), their significance in shaping eutrophication processes, and the consequent impacts of eutrophication in whole ecosystems. In addition, the currently available information about nutrient emissions is not yet accurate enough for all sources to enable effective decision-making on water protection.

More information is particularly required concerning the significance of agricultural policies in reducing nutrient loads; the role of nitrogen in shore ecosystems; nutrient sinks and internal nutrient loading; and the availability of nutrients and their usability in different forms in coastal waters and the open sea. It is especially important to identify conditions where nitrogen loads need to be reduced. Wastewater treatment technologies and the impacts of emissions from scattered settlements on the nutrient loads entering watercourses also need to be examined. Long-range pollution and emissions from increasing numbers of ships represent significant sources of nitrogen, and development work is needed concerning the necessary emission reductions and the monitoring of such deposition. More research and development work is also needed with regard to the impacts of fish farms and their nutrient emissions.

Other important issues requiring development include the improvement and adoption of new monitoring methods (using automation and satellite images) and mathematical models, as well as the international harmonisation of models for use both as tools for research at the ecosystem level, and in forecasting trends over larger temporal and spatial scales.

Not enough is known about the socio-economic impacts and processes related to the nutrient loads in the Baltic Sea and efforts to reduce them. Assessments of socio-economic impacts should be much more widely included in research and development work than they are today. More research must be done to find out

how current policies are shaping the activities that pollute or otherwise affect the Baltic Sea, and to assess which measures could enhance the protection of the marine environment without excessive socio-economic drawbacks.

The regional environment centres should increasingly consider research data in their statements for the environmental permit authorities concerning the need for nutrient removal and the related requirements and objectives.

6.2 Loads and impacts of hazardous substances

The levels of knowledge in Finland and the other Baltic coastal countries concerning the loads and ecological impacts of hazardous substances are considerably lower than for the factors behind eutrophication problems.

In Finland more than 5,000 substances classified in chemicals legislation as hazardous are currently used commercially. But information is so far only available for a very limited number of substances about their occurrence in industrial, municipal or agricultural emissions, or about their concentrations and impacts in the Baltic Sea as a consequence of these emissions and long-range pollution. This lack of information hampers the effective targeting of measures to protect the Baltic marine environment, and also hinders the systematic implementation of the related EU legislation and internationally agreed policy objectives.

Steps must be taken urgently to organise comprehensive assessments of the sources of hazardous substances, especially persistent pollutants, as well as wide-ranging monitoring. Such measures are also required to implement the EU Water Framework Directive. More research is also needed on the effects of northern conditions and the special features of the Baltic Sea on concentrations of chemicals and the associated environmental risks. The combined impacts of the chemicals present in the Baltic Sea on marine life and humans must also be studied in more detail. Another important field where more intensive research is needed concerns hormone-disrupting substances, their ecological significance, and the ways they affect organisms.

6.3 The sustainable use of the Baltic Sea and its biodiversity

Human activities that change and burden the environment represent a serious threat to the biodiversity of the Baltic Sea and its coastal ecosystems. The need to preserve this biodiversity should be duly considered in all use and exploitation of the sea so as to ensure that such activities do not have unfavourable impacts on marine and coastal ecosystems. Protective measures should particularly be taken to safeguard the valuable marine and coastal biotopes listed in the EU Habitats Directive, HELCOM Recommendations, national conservation programmes, and other such programmes. Such efforts must be based on comprehensive research and development work.

Further research is also needed into ways to limit the harmful ecological impacts of activities including the transportation of oil and chemicals, construction, the extraction of construction materials, other shipping, boating, tourism and other recreational activities.

Improving research and development related to the biodiversity of marine and coastal areas will help to ensure that threatened species and species in special need of protection are appropriately protected and managed, and that their habitats no longer decline as a consequence of the use of the Baltic Sea and its shores.

Important areas for research related to the use of the Baltic Sea and its biodiversity include: classifications of the ecological state of the sea, the population ecology of marine species, the identification of threats to marine species (plants, fish, birds, mammals), habitat change, the ecology of invasive species, the structures and functions of ecological communities in shore habitats, ways to monitor and assess biodiversity in coastal areas and the open sea, risk assessments related to the shipping of oil and chemicals, and functional diversity.

Documentation page

Publisher		Date
	Ministry of the Environment	June 2005
Author(s)		
Title of publication	**Action Plan for the Protection of the Baltic Sea and Inland Watercourse** (Itämeren ja sisävesien suojelun toimenpideohjelma)	
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Abstract	The Action Plan for the Protection of the Baltic Sea and Inland Watercourses has been drawn up in order to implement the Finnish Government's decision-in-principle on steps to be taken to protect the Baltic Sea. This decision-in-principle is also called Finland's Programme for the Protection of the Baltic Sea and its emission reduction goals are based on the Programme of Water Protection Targets for the Year 2005. The Action Plan has been drawn up by the Ministry of the Environment in cooperation with various other sectors and stakeholders and approved by the Ministry of the Environment on June 1, 2005. The Programme for the Protection of the Baltic Sea sets the objectives for protection of the Baltic Sea and the Action Plan for the Protection of the Baltic Sea and Inland Watercourses presents the actions needed to meet these objectives. In order to achieve a good ecological state in the Baltic Sea, steps will be taken in six main areas, viz.: combating eutrophication, decreasing the risks of hazardous substances, curbing the risks caused by various uses of the Baltic Sea, preserving and increasing biodiversity, increasing environmental awareness, and research and follow-up. The state of the Baltic Sea coastal waters depends on the pollution loads from coastal regions, inland watercourses and rivers. It is not possible to separate the measures needed to protect the Baltic Sea from the measures to protect inland watercourses, as these are partly overlapping and complementary to each other. The Action Plan for the Protection of the Baltic Sea and Inland Watercourses contains both the general measures required to protect the Baltic Sea and the readjustments deemed necessary as a result of the interim assessment of the Water Protection Targets for the Year 2005.	
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Julkaisun osat/ muut saman projektin tuottamat julkaisut	
Tiivistelmä	Itämeren ja sisävesien suojelun toimenpideohjelma on laadittu toteuttamaan 26.4.2002 tehtyä valtioneuvoston periaatepäätöstä Itämeren suojelusta, jonka päästöjen vähentämistavoitteiden perustana on vesiensuojelun vuoteen 2005 ulottuva tavoiteohjelma. Toimenpideohjelma on valmisteltu ympäristöministeriössä yhteistyössä eri hallinnonalojen ja toimijoiden kanssa, ja ympäristöministeriö on hyväksynyt ohjelman 1.6.2005. Itämeren suojeluohjelmassa asetetaan Itämeren suojelulle tavoitteet ja Itämeren ja sisävesien suojelun toimenpideohjelmassa esitetään tavoitteisiin pääsemiseksi tarvittavat toimenpiteet. Itämeren hyvän ekologisen tilan saavuttamiseksi on toimittava kuudella toiminta-alueella. Nämä ovat rehevöitymisen torjunta, vaarallisten aineiden aiheuttamien riskien vähentäminen, Itämeren käytön haittojen vähentäminen, luonnon monimuotoisuuden säilyttäminen ja lisääminen, ympäristötietoisuuden parantaminen sekä tutkimus ja seuranta. Itämeren rannikkovesien tila riippuu rannikkoalueen, sisävesien ja jokien aiheuttamasta kuormituksesta. Itämeren suojelun kannalta tarpeellisia toimia ei ole mahdollista erottaa sisävesien suojelutoimista, vaan ne ovat osittain päällekkäisiä ja toisiaan täydentäviä. Itämeren ja sisävesien suojelun toimenpideohjelmaan sisältyy sekä Itämeren suojelun edellyttämät yleiset toimet että suoritetun väliarvion perusteella tarpeellisiksi todetut vesiensuojelun toimenpideohjelman tarkistukset.
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Presentationsblad

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Författare		
Publikationens titel	**Action Plan for the Protection of the Baltic Sea and Inland Watercourse** (Handlingsprogram för skydd av Östersjön och av inlandsvattnen)	
Publikationens delar/ andra publikationer inom samma projekt		
Sammandrag	Handlingsprogrammet för skydd av Östersjön och av inlandsvattnen har upprättats för genomförande av statsrådets principbeslut om åtgärder för att skydda Östersjön. Principbeslutet fattades den 24 april 2002. I beslutet grundar sig målen för minskade utsläpp på ett målprogram för vattenvården som sträcker sig fram till 2005. Handlingsprogrammet har utarbetats av miljöministeriet i samråd med olika sektorer och intresseorganisationer. Miljöministeriet godkände handlingsprogrammet den 1 juni 2005. I statsrådets program för skyddet av Östersjön finns målen för Östersjöskyddet inskrivna. I miljöministeriets handlingsprogram för skydd av Östersjön och av inlandsvattnen läggs nödvändiga åtgärder för måluppfyllelsen fram. För en god ekologisk status i Östersjön krävs det insatser inom sex områden: bekämpning av eutrofieringen, åtgärder för att minska riskerna på grund av farliga ämnen, minskade skadeverkningar i samband med användningen av Östersjön, insatser för att bevara och öka biodiversiteten, större miljömedvetenhet samt forskning och uppföljning. Tillståndet i kustvattnen kring Östersjön beror på hur stor belastningen från kustområdena, inlandsvattnen samt åarna och älvarna är. Det går inga vattentäta skott mellan åtgärder för att skydda Östersjön och åtgärder för att skydda inlandsvattnen, utan de både överlappar och kompletterar varandra. Handlingsprogrammet innefattar dels generella insatser för att skydda Östersjön, dels åtgärder som vid en mellantidsutvärdering av åtgärdsprogrammet för vattenvården visat sig vara nödvändiga.	
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